

**Federal Aviation Administration, DOT**

**§91.513**

areas that are intermittently under water.

[Doc. No. 18334, 54 FR 34314, Aug. 18, 1989, as amended by Amdt. 91-280, 68 FR 54561, Sept. 17, 2003]

**§91.511 Radio equipment for overwater operations.**

(a) Except as provided in paragraphs (c), (d), and (f) of this section, no person may take off an airplane for a flight over water more than 30 minutes flying time or 100 nautical miles from the nearest shore unless it has at least the following operable equipment:

(1) Radio communication equipment appropriate to the facilities to be used and able to transmit to, and receive from, any place on the route, at least one surface facility:

- (i) Two transmitters.
- (ii) Two microphones.
- (iii) Two headsets or one headset and one speaker.
- (iv) Two independent receivers.

(2) Appropriate electronic navigational equipment consisting of at least two independent electronic navigation units capable of providing the pilot with the information necessary to navigate the airplane within the airspace assigned by air traffic control. However, a receiver that can receive both communications and required navigational signals may be used in place of a separate communications receiver and a separate navigational signal receiver or unit.

(b) For the purposes of paragraphs (a)(1)(iv) and (a)(2) of this section, a receiver or electronic navigation unit is independent if the function of any part of it does not depend on the functioning of any part of another receiver or electronic navigation unit.

(c) Notwithstanding the provisions of paragraph (a) of this section, a person may operate an airplane on which no passengers are carried from a place where repairs or replacement cannot be made to a place where they can be made, if not more than one of each of the dual items of radio communication and navigational equipment specified in paragraphs (a)(1) (i) through (iv) and (a)(2) of this section malfunctions or becomes inoperative.

(d) Notwithstanding the provisions of paragraph (a) of this section, when

both VHF and HF communications equipment are required for the route and the airplane has two VHF transmitters and two VHF receivers for communications, only one HF transmitter and one HF receiver is required for communications.

(e) As used in this section, the term *shore* means that area of the land adjacent to the water which is above the high-water mark and excludes land areas which are intermittently under water.

(f) Notwithstanding the requirements in paragraph (a)(2) of this section, a person may operate in the Gulf of Mexico, the Caribbean Sea, and the Atlantic Ocean west of a line which extends from 44°47'00" N / 67°00'00" W to 39°00'00" N / 67°00'00" W to 38°30'00" N / 60°00'00" W south along the 60°00'00" W longitude line to the point where the line intersects with the northern coast of South America, when:

(1) A single long-range navigation system is installed, operational, and appropriate for the route; and

(2) Flight conditions and the aircraft's capabilities are such that no more than a 30-minute gap in two-way radio very high frequency communications is expected to exist.

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**§91.513 Emergency equipment.**

(a) No person may operate an airplane unless it is equipped with the emergency equipment listed in this section.

(b) Each item of equipment—

(1) Must be inspected in accordance with §91.409 to ensure its continued serviceability and immediate readiness for its intended purposes;

(2) Must be readily accessible to the crew;

(3) Must clearly indicate its method of operation; and

(4) When carried in a compartment or container, must have that compartment or container marked as to contents and date of last inspection.

(c) Hand fire extinguishers must be provided for use in crew, passenger, and cargo compartments in accordance with the following: